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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/834,022	04/12/2001	Keith K. Sturcken	FE-00519	5256

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EXAMINER

LATTIN, CHRISTOPHER W

ART UNIT PAPER NUMBER

2812

DATE MAILED: 10/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/834,022

Applicant(s)

STURCKEN, KEITH K.

Examiner

Christopher W Lattin

Art Unit

2812

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other \_\_\_\_\_

***Election/Restrictions***

Applicant's election with traverse of claims 9-19 in Paper No. 5 is acknowledged. The traversal is on the ground(s) that there is no material difference in the claims. This is not found persuasive because the device can be made by multiple methods, for instance reflow or lead attachment for formation of the bumps. As an initial matter it was assumed that applicant wished to limit the invention to high-density packages for which the method was not so limited. The claims have been amended, but this does not overcome the fact that the article claimed can be made by materially different methods, by which the device claims are not so limited. Additionally, these inventions have acquired a separate status in the art as shown by their different classification as previously indicated.

The requirement is still deemed proper and is therefore made FINAL.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Frew et al. (U.S. Patent 5,327,327).

Frew et al. teach an article comprising a plurality of IC chips 10 having electrical leads extending to bonding pads on one side of the chip, bonding pads electrically

Art Unit: 2812

connected to the electrical leads, oblong bumps 31 on the bonding pads that extend beyond one side of each chip to which the plurality of IC chips is aligned, and connected to a printed circuit board. See especially Figs. 5a and 5b and column 3 line 3 – column 4 line 15.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frew et al. (U.S. Patent 5,327,327) in view of Ball (U.S. Patent 5,925,725).

Frew et al. are applied supra and teach all of the limitations of claims 9-15 including an article comprising a chip stack 30 having electrical circuitry extending to bonding pads on one side of the chip, oblong bumps 31 electrically connected to the electrical circuitry that extend beyond one side of each chip to which the plurality of IC chips is aligned, and connected to a second level electronics package, but fail to teach that the one side of the chip has a foreshortened portion or that adjacent chips in the stack are connected by an epoxy adhesive. See especially Figs. 5a and 5b and column 3 line 3 – column 4 line 15. Ball teaches a foreshortened side to allow for bumps while reducing the chip stack thickness to a minimum and epoxy disposal between adjacent chips. It would have been obvious to one skilled in the art at the time of the invention

Art Unit: 2812

that foreshortened sides on the side of the chips where bumps are located would allow more room for the bumps while maintaining a minimal distance between chips and thus decrease the thickness of the stack and conserve PCB real estate. It further would have been obvious to one skilled in the art that epoxy taught by Ball is an equivalent adjacent chip attachment to the polyimide taught by Frew et al. and has the advantage of greater strength and temperature resistance.

### ***Conclusion***


The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Beilstein, Jr. et al. (U.S. Patent 5,786,628), Rinne (U.S. Patent 6,418,033) and Tutsch et al. (U.S. Patent 6,380,616) are cited as teaching devices related to that which is presently claimed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher Lattin whose telephone number is (703) 305-3017. The examiner can normally be reached Monday through Friday from 8:00 A.M. to 5:00 P.M.

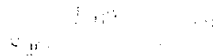
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling, can be reached at (703) 308-3325. The fax numbers for this Group are (703) 872-9318 for responses to non-final actions and (703) 872-9319 responses to final actions.

Art Unit: 2812

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

CWL   
October 25, 2002



  
Supervisor